Space Weather Forecast

Issued on Friday, 17 June 2022 at 01:10 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Daily chance of isolated M-class flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Moderate, with the most complex sunspot region producing an isolated impulsive Moderate flare at 16/0353UTC. There are currently 9 numbered sunspot regions. The most significant group, mentioned above, is transiting across the southwest quadrant at present. It is modestly large in overall size and still contains a small complex spot in its main trailer portion, however recent imagery also shows some decay in its minor intermediate spots. All other spot groups are either unchanged in overall appearance, or showing some minor decay, and have more simplified uni-polar or bi-polar magnetic configurations.

No Earth-directed CMEs were observed in available imagery.

Solar Wind / Geomagnetic Activity: The solar wind was elevated, with a few brief peak into strong levels under ongoing coronal hole influence. The magnetic field strength of the solar wind was at weak levels, while the north-south component varied frequently but weakly between north and south orientations. Corresponding geomagnetic activity was largely Quiet to Unsettled (Kp 1 to 3), with an Active interval (Kp 4) 16/2100-2400 UTC.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Barring new development, solar activity is expected to continue mostly Low, but with a chance of further isolated M-class flares, most likely from the more complex group in the southwest quadrant.

Solar Wind / Geomagnetic Activity: No CMEs are currently expected to affect Earth during the period.

Solar winds are expected to remain mostly elevated through much of the next few days, due to influence from coronal holes 90 then 92. By Day 4 (20th) solar winds should decline as these features rotate away from a geo-effective position.

Geomagnetic activity is expected to fluctuate in the range Quiet to Active for the first half of the period, with a just very Slight Chance of a G1/Minor Storm interval, before becoming largely Quiet by Day 4 (20th).

Energetic Particles / Solar Radiation: There is a daily slight chance of an S1 or greater solar radiation storm event occurring, largely a consequence of the westward transit of the more complex spot group in the southwest quadrant.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	5	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	30	30	30	30
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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